What is claimed is:

1. An IP address translator located between an IPv4 network and an IPv6 network, comprising:

means for assigning, in a process of establishing a session between an IPv4 apparatus having an IPv4 address and an IPv6 apparatus having an IPv6 address, a virtual IPv6 address to the IPv4 apparatus and a virtual IPv4 address to the IPv6 apparatus;

an address translation table for storing a correspondence relation between the IPv4 address and the virtual IPv6 address, a correspondence relation between the IPv6 address and the virtual IPv4 address, and filter information in association with each of the virtual addresses; and

address translation processor for translating IP addresses of a data packet received from the IPv4 apparatus or the IPv6 apparatus in accordance with the address translation table,

wherein the address translation processor checks header information of each of data packets to be subjected to address translation on the basis of the filter information stored in the address translation table, discards a data packet which does not adapt to the filter information, and executes

address translation on a data packet which adapts to the filter information.

2. The IP address translator according to claim 1, wherein filter information in association with the virtual IPv4 address specifies a source IPv6 address and a destination port number to be used in a data packet having the virtual IPv4 address as a destination address, and filter information in association with the virtual IPv6 address specifies a source IPv4 address and a destination port number to be used in a data packet having the virtual IPv6 address as a destination address.

3. The IP address translator according to claim 2, wherein the filter information specifies the type of a port to be designated in each data packet.

4. An IP address translator for translating IP addresses of each of data packets and session control packets transferred between an IPv4 network and an IPv6 network in accordance with an address translation table, comprising:

session control packet processing means for capturing a session control packet communicated

between an IPv4 apparatus having an IPv4 address and an IPv6 apparatus having an IPv6 address, transferring the session control packet to a payload converter in a form of an encapsulated packet, translating when an encapsulated packet including a session control packet having been subjected to payload conversion is received from the payload converter, IP addresses of the session control packet extracted from the encapsulated packet, and transferring the resultant packet to a destination network;

address information managing means for assigning, in response to a request from the payload converter, a virtual IPv6 address or a virtual IPv4 address to an IPv4 address or an IPv6 address, storing address translation information indicative of a relation between the IPv4 address and the virtual IPv6 address and address translation information indicative of a relation between the IPv6 address and the virtual IPv4 address in association with filter information designated by the payload converter into the address translation table, and notifying the payload converter of the results of the virtual address assignment; and

address translation means for translating an

IP address of a data packet received from each the IPv4 apparatus or the IPv6 apparatus in accordance with the address translation table,

wherein the address translation means checks header information of each of data packets to be subjected to address translation on the basis of the filter information stored in the address translation table, discards a data packet which does not adapt to the filter information, and executes address translation on a data packet which adapts to the filter information.

5. The IP address translator according to claim 4, wherein filter information in association with the virtual IPv4 address specifies a source IPv6 address and a port number to be used in a data packet having the virtual IPv4 address as a destination address, and filter information in association with the virtual IPv6 address specifies a source IPv4 address and a port number to be used in a data packet having the virtual IPv6 address as a destination address.

6. The IP address translator according to claim 4, wherein the virtual address managing means

executes assignment of the virtual IPv6 address in response to a request of assigning a virtual IPv6 address to an IPv4 address issued from the payload converter, assignment of the virtual IPv4 address in response to a request of assigning a virtual IPv4 address to an IPv6 address issued from the payload converter, and deletes, in response to a virtual address release request issued from the payload converter, address translation information designated by the request from the address translation table.

7. The IP address translator according to claim 6, wherein the filter information in association with the virtual IPv4 address specifies a source IPv6 address and a port number to be used in a data packet having the virtual IPv4 address as a destination address, and filter information in association with the virtual IPv6 address specifies a source IPv4 address and a port number to be used in a data packet having the virtual IPv6 address as a destination address.

8. The IP address translator according to claim 4, wherein a payload of the session control packet

includes a SIP (Session Initiation Protocol) message.

9. A packet transfer apparatus comprising a plurality of line interfaces, a plurality of protocol processing units each provided for each of the line interfaces, and a switching unit for switching packets among the plurality of protocol processing units,

wherein one of the line interfaces is connected to a payload converter, and at least one of protocol processing units which is accompanying a line interface connected to an IPv4 network or an IPv6 network is comprised of:

means for assigning, in a process of establishing a session between an IPv4 apparatus having an IPv4 address and an IPv6 apparatus having an IPv6 address, a virtual IPv6 address to the IPv4 apparatus and a virtual IPv4 address to the IPv6 apparatus;

an address translation table for storing a correspondence relation between the IPv4 address and the virtual IPv6 address, a correspondence relation between the IPv6 address and the virtual IPv4 address, and filter information in association with each of

the virtual addresses; and

address translation processor for translating IP addresses of a data packet received from the IPv4 apparatus or the IPv6 apparatus in accordance with the address translation table,

the address translation processor having means for checking header information of each of data packets to be subjected to address translation on the basis of the filter information stored in the address translation table, discarding a data packet which does not adapt to the filter information, and executing address translation on a data packet which adapts to the filter information.

10. A packet transfer apparatus comprising a plurality of line interfaces, a plurality of protocol processing units each provided for each of the line interfaces, and a switching unit for switching packets among the plurality of protocol processing units,

wherein one of the line interfaces is connected to a payload converter, and at least one of the protocol processing units which is accompanying a line interface connected to an IPv4 network or an IPv6 network is comprised of:

session control packet processing means for capturing a session control packet communicated between an IPv4 apparatus having an IPv4 address and an IPv6 apparatus having an IPv6 address, transferring the session control packet to the payload converter in a form of an encapsulated packet, translating, when an encapsulated packet including a session control packet having been subjected to payload conversion is received from the payload converter, IP addresses of the session control packet extracted from the encapsulated packet, and transferring the resultant packet to a destination network;

address information managing means for assigning, in response to a request from the payload converter, a virtual IPv6 address or a virtual IPv4 address to an IPv4 address or an IPv6 address, storing address translation information indicative of a relation between the IPv4 address and the virtual IPv6 address and address translation information indicative of a relation between the IPv6 address and the virtual IPv4 address in association with filter information designated by the payload converter into an address translation table, and notifying the payload converter of the results of

the virtual address assignment; and

address translation means for translating an IP address of a data packet received from the IPv4 apparatus or the IPv6 apparatus in accordance with the address translation table,

wherein the address translation means checks header information of each of data packets to be subjected to address translation on the basis of the filter information stored in the address translation table, discards a data packet which does not adapt to the filter information, and executes address translation on a data packet which adapts to the filter information.

11. The packet transfer apparatus according to claim 10, wherein filter information in association with the virtual IPv4 address specifies a source IPv6 address and a port number to be used in a data packet having the virtual IPv4 address as a destination address, and filter information in association with the virtual IPv6 address specifies a source IPv4 address and a port number to be used in a data packet having the virtual IPv6 address as a destination address.

12. The packet transfer apparatus according to claim 10, wherein the virtual address managing means executes assignment of the virtual IPv6 address in response to a request of assigning a virtual IPv6 address to an IPv4 address issued from the payload converter, assignment of the virtual IPv4 address in response to a request of assigning a virtual IPv4 address to an IPv6 address issued from the payload converter, and deletes, in response to a virtual address release request issued from the payload converter, address translation information designated by the request from the address translation table.

13. The packet transfer apparatus according to claim 12, wherein the filter information in association with the virtual IPv4 address specifies a source IPv6 address and a port number to be used in a data packet having the virtual IPv4 address as a destination address, and filter information in association with the virtual IPv6 address specifies a source IPv4 address and a port number to be used in a data packet having the virtual IPv6 address as a destination address.